The Signs of Death.

By Dr. Andrew Wilson. See page 374.

HEALTH

A WEEKLY JOURNAL OF

DOMESTIC AND SANITARY SCIENCE.

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EDITED BY DR. ANDREW WILSON, F.R.S.E. &C.

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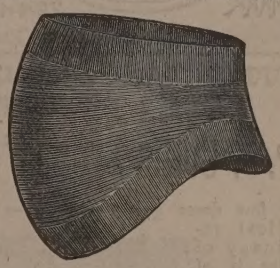

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◆ HEALTH ◆

EDITED BY

DR. ANDREW WILSON, F.R.S.E., &c.

LONDON: *FRIDAY, MARCH* 15, 1889.

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Notes by the Way

BY THE EDITOR.

"Health is the foundation of all our physical happiness."—*Herder.*

THE insensate "follies of fashion" have never been more typically illustrated, in my opinion, than in the spectacle known as the "Queen's Drawing-room," when ladies of all ages are not only compelled to run the gauntlet of the London mob, sitting shivering in their carriages, clad in low dresses, and in garments utterly insufficient to protect them against cold and chill. The waiting in the ante-rooms of the Palace has also been described as a trying time for delicate women, and the "Drawing-room," in certain of its phases, has been not inaptly described as a mob of half-dressed women, paying their devoirs to the Queen at the risk of health, and often at no inconsiderable sacrifice of modesty as well. New regulations as to dress, it appears, have been somewhat tardily approved of by the Queen, who, as herself a woman, reputedly of considerate and kindly nature, might surely long ago have adapted her court-functions to the canons at once of common sense and health.

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A MEDICAL journal says that "there is happily some truth in the statement published by us a fortnight ago that it was intended to sanction a change in the style of court dress usually worn by ladies at the Queen's winter Drawing-room. Her Majesty has since been pleased to allow that ladies in whose case illness, infirmity, or advancing years have rendered the usual costume unadvisable, may appear in a high court dress. Permission to adopt the new modification may be had of the Lord Chamberlain, at whose office particulars as to the form of dress to be worn can also be obtained. We may mention, however, that the term "high" is, unfortunately, only a relative one. The front of the chest will still be partly exposed. This fact, and the careful restriction to ladies whose health as described is at best indifferent, must materially qualify any enthusiasm we might otherwise feel in accepting the new rule. There is doubtless some latitude for the exercise of medical opinion in rendering the word "infirmity," a point on which members of the profession who may be consulted may fairly avail themselves. We must, however, express a certain degree of disappointment that Her Majesty's concession is not in its terms as liberal as it might be, since it will exclude many, especially among the young, whose apparent health may not be sound enough to bear exposure to the treacherous character of our English climate."

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WITH these remarks I cordially agree. When will the court etiquette adapt itself to health-laws, and to what rational folks may be inclined to term the ordinary conventionalities of life? But then courts would be nothing if conventional; and ladies who regard "presentation" as the hall-mark of extreme respectability and social position it appears, must still be content to risk chest-disease. It is but a poor exchange for health, however, to gain distinction at a Drawing-room, and doubtless medical men may continue to preach in vain from the text that no fashion or custom in the world is for a moment to be placed in comparison with the priceless boon and blessing of good health.

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SINCE these words were penned, I learn that only three or four ladies availed themselves of the permission to wear high-necked dresses at the last court-function. Comment on this fact is needless. If the persons most concerned in this question of modesty and health do not care to initiate reform, it is clear all further argument would be wasted upon them. The medical faculty will continue to benefit largely from the amount of chest-disease thus engendered.

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I observe that corporal punishment has for some years been prohibited in the Belgian State and other schools, and those teachers who are not able to maintain discipline by means of extra tasks are considered unfit for their calling. This is just a little hard on the teachers I think. Doubtless corporal punishment should be rarely resorted to; but there is nothing better than a thorough "drubbing" for a really bad and incorrigible boy. I wonder what is done with young Belgians who are of this latter type.

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At a recent meeting of the Glasgow Philosophical Society two papers were read on a scheme of cremation by Mr. J. Chalmers, architect, and Mr. W. Key, the manager of Tradeston Gas Works. Mr. Key described a furnace which could be erected at a cost of about £150, and in which a body could be cremated in the course of half an hour. Were the system adopted on a large scale, the cost of actually cremating each body would not exceed 2s., while the cost of burying paupers at present is 13s. 11d. per head to the authorities. It was stated at the meeting that above 100 members had joined the Glasgow Society.

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The following words appear to me to be worth bearing in mind. They contain much of the philosophy which is associated with the cultivation of health:—Some men seem never to grow old. Always active in thought, always ready to adopt new ideas, they are never chargeable with fogeyism. Satisfied yet ever dissatisfied, settled yet ever unsettled, they always enjoy the best of what is, and are the first to find the best of what will be.

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I quote the following from a medical journal:—"A largely signed petition was recently presented to the Home Secretary, praying that the Albert medal might be bestowed on Dr. Marcus Eustace, a medical practitioner of Alresford, Hants, in recognition of his courageous action in performing direct transfusion of blood under extraordinary circumstances, in the case of a woman whose husband is employed by Lord Ashburton. The woman was insensible and gradually sinking, but immediately after the transfusion, which was performed at night in the presence of two women, she recovered sufficiently to say she believed she would live, and as a matter of fact, a week or two after, had fully recovered, The result of the petition was a reply from the Home Secretary, stating that 'while fully recognizing the gallantry of Dr. Eustace's conduct, and wishing to express high appreciation of the self-devotion shown by that gentleman in this instance, he regrets that it has been decided to be inexpedient that the Albert medal should be granted in cases of this kind, although such acts deserve high commendation as deeds of generous self-sacrifice and devotion to the calls of professional honour.'"

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I should like to know what Mr. Home Secretary Matthews regards as a suitable case for the award of the Albert medal. Dr. Eustace deserved the award quite as fully as does the man who goes down a mine to succour entombed or suffocating miners, and as fully as one who mans a lifeboat. I think Mr. Matthews' ideas of heroic conduct require emendation; and I for one shall look forward with interest to the next occasion on which the Albert medal is awarded, by way of instituting a comparison between the heroism which meets State approval and that which (as in the case of Dr. Eustace) must receive the warmer, and perchance more valued, recognition of his fellow-men.

Original Essays

"Life is not to live, but to be well."—*Martial.*

THE SIGNS OF DEATH.

By Dr. Andrew Wilson.

Readers of *Jezebel's Daughter*, that entrancing romance written by Wilkie Collins, will remember the scene in the Continental dead-house, where the hands of the corpse are connected to a bell-pull, the bell whereof sounds on the slightest quiver of the muscles. This precaution is taken, of course, to prevent premature burial. In countries where the temperature is higher than in Britain, dead bodies are not kept pending burial for any length of time, such as is customary with ourselves. As a consequence, risk of live-burial is increased, and it is with the view of obviating such risk that the mortuary arrangements on the Continent partake of an elaborateness unknown on this side of the Channel.

My friend, Dr. B. W. Richardson, in the current number of the *Asclepiad*, discourses with his usual felicity on the "Absolute Signs and Proofs of Death." This article contains so much that is interesting and instructive, that I make no apology for introducing to the readers of Health the elements of a most exact scientific study on the part of the author of so many important contributions to medical science. In addition, as a piece of useful information, the subject before us may merit attention. Ambulance students, for instance, have frequently to determine when efforts to restore inanimate persons are to be regarded as hopeless; and in this light alone, Dr. Richardson's contribution may prove of popular and public value.

Dr. Richardson himself gives notable reasons for entering upon the study in question. He remarks that, "Owing to the many discussions that have of late taken place on the subjects of cremation, earth-to-earth burial, and disposal of the dead in its sanitary and social aspects, a considerable importance is now being attached to the proofs of death. Some years ago, I and five other physicians were consulted by one of the ecclesiastical Jewish authorities to give answer to a series of questions bearing on the absolute signs by which it could be known that life was extinct and danger of interment during life impossible. This inquiry was naturally and judiciously made in consequence of the revival into full life of a child who had been laid out for dead, and who was believed to be dead up to a period immediately preceding that fixed for the funeral. Before then I had more than once been called to see persons who were dead, but whose friends were not satisfied of the fact until it was proved by skilled demonstration; and a few months ago I was consulted in a similar case respecting a lady who had died rather suddenly in the night, and to whom my friend, Dr. Braithwaite Rogers, had been summoned."

At first sight it would seem an easy matter to decide whether or not a person was dead, as distinguished from one in whom animation was temporarily suspended. But any one who has ever seen a half-drowned man may freely recognize the difficulty which attends a correct diagnosis of the case. In death itself, the appearances of life may often be imitated and represented to a marked degree. Dr. Richardson tells us of the case of a young girl who, a few hours after death, assumed such a life-like aspect as to colour of skin, that her mother "would not accept the assurance that life had not returned." The death had occurred from scarlet fever. At first the

skin had assumed the leaden pallor of death; but, in a few hours the surface of the body became of a "really living flesh-like character." Dr. Richardson says that in such cases the change is due to the oxidation of blood which was charged with carbonic acid gas—physiologically, a change which occurs in our lungs as the result of breathing. The person dies with all the symptoms of slow suffocation. The blood is charged with carbonic acid gas. But after death there ensues an interchange of this gas for the oxygen of the air, and the dark venous blood, converted in the dead body into scarlet arterial blood, gives to the skin, for a time, the aspect of the living person. Soon, however, this life-like appearance gives way before the advance of decomposition, and the delusive hopes of friends are once more shattered by the grim environment to whose grasp the body is forthwith consigned.

There are, however, other apparent signs of life in a dead body which are apt to prove as delusive as that of colour. Speaking of the retention of heat in the frame after death, our author says that this "is a second circumstance leading to the suspicion that death has not actually taken place. I was once summoned into Warwickshire to see a gentleman who had fallen dead suddenly from apoplexy, and whose warmth of body was maintained as if he were alive. In this example the animal temperature was still 98 degs. Fahr. when I arrived; but it was just then beginning to fall, and in the course of a few hours had dropped to that of the surrounding air. Here, again, the phenomenon of *rigor mortis* had supervened almost instantly after dissolution. The retention of warmth in such examples as these is also easily explainable. It happens, as a rule, in examples of sudden death from arrest of the circulation in the cerebral centres. Such arrest is followed by a rapid rise of temperature, due to resistance, and is commonly maintained so long that, to the mind of the bystanders, life cannot be considered as extinct. They do not notice the generally accompanying fact that firm rigidity of the limbs and features is rapidly developed; or, if they do notice the fact, they are apt to put it down to a kind of convulsion or seizure, which is not incompatible with life under some forms of spasmodic disease. Thus, in the very case to which I have just referred, one of the women attendants observed, in response to my comment on the rigidity of the limbs, that she 'had seen quite as well-marked stiffness in persons in hysterics'; an observation extremely acute and correct, as many observations so made are wont to be."

Supposed muscular movements after death are more startling than the preceding signs and appearances, and afford to the public apparently more reliable proofs of life than mere skin-reddening or retention of heat. So also, when the face retains its life-like "expression" people are apt to doubt that death has really occurred. The chest has thus been alleged to rise and fall after death, and even the practised eye, Dr. Richardson admits, may be readily deceived. But such movements are "supposed" rather than real, and conversely with life at low pressure (as in the half-drowned man), one may maintain that the chest may exhibit no appreciable signs of movement at all.

Speaking of the movements of those known to be dead, Dr. Richardson says that sometimes "these are sufficiently startling. The bodies of the dead are cold and the expressions of their features death-like; but the movements are those of natural life. The most common movement is that of flexing the right leg and drawing it up towards the body on the left leg; but, in some cases, a hand is moved, and, in one or two cases, a substance put into the hand has seemed to be grasped, as if by a reflex excitement. Some observers have said that reflex movements of the muscles of the face are noticeable, but I do not remember to have seen them myself. These movements have sometimes continued for a period of an hour. They have occurred mostly in men of strong muscular build, and they were most distinctly developed and pronounced in those who had died very rapidly, and in whom, therefore, the muscular irritability, or the nervous stimulus, or both, had not become exhausted at the moment of dissolution."

The occasional absence of the signs of decomposition in the dead is a notable feature in connection with the present subject. There is probably no change produced by death which appeals more strongly to the popular understanding than these familiar alterations in the colour and appearance of the frame, which herald the process of universal disintegration and decay. Yet even this familiar feature may be absent in some cases, and such instances naturally become most puzzling to the uninitiated mind. Cold and *dry* weather retards decomposition, while the corpses of persons of a spare habit of body who have suffered from wasting disease will show the advance of decay less early than those of persons of flabby and stout build. Dr. Richardson adds that copious participation in alcohol shortly before death may exert an effect in preventing the early inroad of decomposing changes.

So, also, when a man has died under the action of prolonged narcotism—that is, the state of stupor produced by such drugs as opium, chloral, and the like—it may be difficult to distinguish death from the coma-state thus induced. The *Morion* or "death wine" of Pliny and Dioscorides was employed in surgical operations of old, and also to render persons insensible to death by torture. The Jewish women used wine of mandragora effectively on the crucified, so that the Roman soldiery were accustomed to break the legs of the victims to make sure that the death-penalty had been exacted. Shakespeare makes Juliet to fall asleep by aid of this wine; and the modern chloral is perhaps its nearest modern representative.

"In the first experiments made in this country with chloral," says Dr. Richardson, "after the discovery of its effects by Liebreich, we learned that such a deep narcotism could be induced by this narcotic that it might be impossible to say whether an animal under its influence were alive or dead. In fact, in the hospital at Exeter, where these earliest researches in England were carried out by myself, four pigeons assumed to be dead were removed from the building and were placed on a dust-heap outside, as animals that had been actually killed painlessly by the hydrate; but in the morning they were all alive, and as well as they were before the narcotization. The same order of facts, arising from the same cause, was very soon observed in the human subject. Within two months of the reading of my report on chloral to the British Association in 1869, at Exeter, Dr. Whitmore, of Wimpole-street, called me to see a medical man who had been found dead, as it was presumed, from an excessive dose of chloral, a bottle of chloral being by his side, together with all the other arrangements, indicating that he had taken the salt in water, probably to the amount of 120 grains. To all common observation this gentleman was dead. There was no sign of respiration; it was very difficult for an ear so long trained as my own to detect the sounds of the heart; there was no pulse at the wrist, and the tempera-

ture of the body had fallen to 97 degs. Fahr. In this condition the man had lain for some hours before my arrival; and yet, under the simple acts of raising the warmth of the room to 84 degs. Fahr., and injecting warm milk and water into the stomach, he rallied slowly out of the sleep, and made a perfect recovery."

As regards a state of *trance*, the likeness to death is, of course, very marked. Our author relies upon the maintenance of the body's heat as a distinction between mere catalepsy (or trance) and true death. Yet there are cases in which it requires all the care and scrutiny of the physiologist to determine whether trance or death is facing him. Vesalius, the great anatomist of old, Dr. Richardson reminds us, was charged by the Inquisition with dissecting the body of a young man while the heart was still pulsating. This was doubtless a case of catalepsy, mistaken for death in days when the scientific determination of the latter state was a matter of much greater difficulty that it is to-day.

Trance or catalepsy may, however, be induced, as well as of apparently spontaneous origin. I quote what our author says regarding this induced form of trance. "It has been witnessed in the most distinctive form after shock by lightning, and it may also have been met with after severe blows and contusions of the head. I have only seen it myself after shock from electric discharge at high tension. In my experiments with the great induction coil at the Royal Polytechnic, large animals like sheep, and smaller animals like dogs, were stricken into such apparent death by the discharge from a battery of ninety-six feet of surface, set in cascade, that the most careful examination would often fail to determine whether or not the blow had been fatal. In short, the recoveries that took place after these extreme shocks were so strange and unexpected, I was obliged to give up the practice I had devised of using electricity as a method for destroying the lives of the lower animals rapidly and painlessly.

"In similar manner," adds our author, "the lightning shock has produced traumatic catalepsy in the human subject. In 1869, Dr. Jackson, of Somerby, Leicestershire sent me the details of the case of a man named Thomas Sharpe, who was struck by lightning whilst driving through Grimsthorpe Park, and who reached his home in a state of extreme prostration, in which he lay for a time, and then sank into such complete catalepsy that he was pronounced to be dead, was laid out as one dead, and heard the sound of his own passing bell from the neighbouring church: by a desperate attempt at movement of his thumbs he attracted the attention of the women engaged about him, and being treated as one still alive, recovered, and lived for several years afterwards, retaining in his memory the facts, and relating them with the most consistent accuracy."

What science has to say regarding the absolute signs of death must be reserved for another paper.

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Personal Health

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With health all taste of pleasure flies."—*Gay.*

IMPORTANT USES OF COD LIVER OIL.

There are few people who, at one time or another, have not had occasion to take cod liver oil. In bronchial affections, in rheumatism, in scrofula, indeed, in all wasting affections, it is a restorative food of unsurpassable excellence. It has recently been shown that a horse fed daily on six and a half ounces of linseed oil could do 464,000lbs. more work than without it. Oil not only makes the other food taken more serviceable, but its own food-value is of the profoundest importance.

When a man begins to run down, he loses fat. Common sense would, therefore, direct that, under such circumstances, the best thing to take would be fat or oil. Practical experience verifies the inferences of common sense. In consumption, for example, a disease in which there are inevitably wasting and considerable loss of weight if it be not stayed in its course, the very best agent in all this world is cod liver oil. It eases the cough, tones the lungs and their mucous membrane, improves the appetite and digestion, lessens the night-sweats, and rounds again the wasting, weakened limbs with fat. The greatest authority of our time says that after using this oil for about half a century he found it the only agent worthy of the name of remedy in consumption.

The physicists inform us that fat contains nearly double the amount of force of other foods, and the physiologists point out that it is therefore peculiarly adapted for storing away for future use, as in the hybernating bear, &c. Fat conserves the body-heat; and fat people as a rule are, perhaps, good-natured people, though it is not the fat folks who have advanced the great work of the world to any wonderful extent, But we have to speak of a property of cod liver oil rarely or never mentioned. It is its usefulness in correcting mal-assimilation by rendering the other food more beneficial. Without fat, the digestive process soon becomes impaired, the assimilation perverted, the health reduced. In gout, rheumatism, scrofula, and syphilis, cod liver oil is often of yeoman service in assisting to restore the nutritive processes to the normal state. To be sure, in gout and rheumatism there may seem to be a contra-indication to oil. But then, it will often restore the strength when nothing else will. This is a point worth bearing in mind. We should recollect that wherever there is rapid cell-growth, as in growing children, oil participates in the process to an important degree. It is the same with the cell-growth in convalescence.

It is often supposed that dyspepsia contra-indicates the use of oil; and this belief is quite correct so far as taking the oil alone and between meals is concerned; but it is not correct if the oil be taken as it should be,—at meal-time and with other food, such as extract of malt. The Kepler Solution is a perfect preparation, admirably adapted to every need of wasting patients, and one which will assimilate better than any other oil extant. It is a combination peculiarly adapted for nervous cases. The nervous system, be it known, contains a larger proportion of fat than any other tissue, and frequently the administration of cod liver oil in nervous debility is a measure of the greatest utility.

THE PROLONGATION OF HUMAN LIFE.

By Clement Milton Hammond.

(Concluded.)

Some Conclusions.—Perhaps it is true that only an expert or a philosopher should draw conclusions. I pretend to be neither one nor the other; yet I think a familiarity with the facts gathered about these hundreds of old people will excuse anything on my part that might at first thought look like presumption. What I have tried to learn from this vast amount of information that has been collected about these examples of long life are these things:—

What is the influence of the different occupations upon length of life?

Does the physical build of a person have anything to do with the length of his life?

Can one so regulate his habits of work, sleep, eating, drinking, use of stimulants and narcotics, and exercise, as to prolong life?

Is there such a thing as an inherited tendency to long or short life?

Few of the people accounted for by this census are *employés;* unless the housewives be called such, and in New England I certainly think they cannot be. The occupation that claims most of the men is farming, which means dependence on circumstances and not on men. Of the men and women alike, throughout the list, they are the exceptions who have not been weighted with responsibilities, but responsibilities which, by being borne without intermission, have become fixed habit. The fact that so many of these old people are not *employés,* considered in conjunction with the fact that the great mass of mankind is made up of wage-workers, points toward a very important conclusion. It seems evident either that a man with the elements of long life within him is more independent in his nature or that a spirit of independence fostered for years tends to prolong existence. It needs no collection of statistics to prove that, in most cases, one who works during a long period for another has a weaker individuality than he who is an employer. The brain of the wage-worker may weigh and measure as much, and his physical strength may be as great, as his who takes the risk of profit and loss upon himself; but in New England, at least, his life is not so long as the average, and it is rare, as the statistics show, that he lives beyond the age of 80. This result cannot, certainly, be due in any considerable degree to amount of labour, to irregularity, or in any degree whatever to care,—supposed to be so deadly in its effect,—or to want of nourishing food.

I doubt, also, if any well-informed person will claim that sanitary conditions have any influence; certainly, not if he knows as much as I do of the conditions under which the bulk of these people whom we are considering live.

Very few instances are given where occupations were changed, except in the cases of the mariners, who have mostly become farmers in a small way. The life of nearly all these people has been what is usually considered a monotonous one, with regular hours of steady labour and moderately sure returns. Few appear to have taken many risks in life, and while most of them have carried more than the average New-Englander's share of mental and physical burdens, these burdens have been so evenly distributed throughout life that the strain has not been jerky. Surely the housewife has more cares than the woman who works in a shop or as a house-servant; and yet her cares are so similar day after day and year after year that they become easy to bear. So, also, with the farmer compared with the clerk or mill-hand. Few in all the list have been either more or less than moderately successful,—successful above the average, to be sure; but they have achieved neither notoriety nor wealth. They have, in fact, been placed above the wasting worry of want, and have, on the other hand, escaped the softening of the tissues and aimlessness of purpose that generally accompany wealth easily and rapidly obtained.

I have alluded to the fact that in the subjects of the census the complexion in most instances is light. While this may be due to the northern origin of the majority of New England people, and have no special bearing upon the subject of longevity, it may possibly be very important as showing the effect of temperament upon the length of life. That the sanguine temperament predominates in these people is, undoubtedly, a fact, and it appears that the sanguine-nervous (judged from complexion, colour of the eyes, and general build) is most common. In theory, certainly, this temperament is that which would most conduce to longevity. Other facts, of the nature of these gathered in New England, from some other locality, might offset these and disprove the theory; but, until these other facts are gathered, I think the theory that people with nervous-sanguine temperaments, and the two nicely blended, are liable to live longer than those who possess a nervous-bilious or bilious-lymphatic temperament, with either predominating, is strong enough to work with; and, while it does not directly teach us how to live longer, it points to something in the future that means a great deal to the human race.

The fact that the majority of the men are bony and muscular, and the women plump, is easily explained, I think, by the occupations. In the work of the men their muscles have been brought into play so much, and have used such a large proportion of the nourishment taken into the system, that fat could not accumulate. With the women the reverse has been true, especially after they reached the age of 50, when grown-up daughters took the hardest of the work from their mothers' shoulders.

In regard to food, the evidence is so uniformly one way that those who advise a simple diet, and those who cry out against meat, must either hold their theories to be above facts or give them up. There is certainly nothing "simple" about the diet of a New England farmer. It consists of salt and fresh pork and beef and all sorts of common fish and vegetables, almost always poorly cooked, and pies and cakes of the most indigestible sorts. The food is "plain," truly, and gives the digestive organs an abundance of work to do; but it is not such food as a theorist would recommend to one who desired to live nearly up to the century-mark. Tea and coffee have certainly proved that they do not tend to shorten life, even if they do not prove that they help to prolong it. The generally-accepted theory in relation to stimulants, that in excess they are not life-sustaining, receives strong support. Tobacco appears to prove itself harmless, at least, on the temperament of these people. Whether it be a help to live long requires other evidence.

While the farmers of New England and their wives are a cleanly people, they are not much given to bathing. This neglect may not have prolonged their existence or made them more healthy, but it is to be presumed that it has not cut off many years or caused much disease. Neither are the members of these households well informed in relation to sanitary matters. They know little of the unseen dampness to which the human system is so

constantly exposed, and, knowing little, care little. May not this be an influence in favour of a prolonged existence, paradoxical as the supposition may seem? In Hingham, Mass., with only 4,000 inhabitants, there are eighty people over 80 years of age, and out of these seventy-five are of light complexion. In no other town in New England, so far as could be learned, is there such a proportion of old people. This town is on the sea-coast, lies very low, is without sewers, and has only recently put in a system of water-works. From a sanitary point of view, the conditions here are about as unfavourable to long life as could be conceived outside the crowded portions of the large cities. And in Boston, where the sanitary conditions appear to be the worst,—in the North End and South Boston districts,—the greatest number of very old people are found.

From the hours of retiring and rising given, I judge the average length of sleep to be about eight hours, with few exceptions. Regularity in hours of work, eating, sleeping, and everything, in fact, seems to have been rigidly observed. But is not this more the result of the temperament than the cause of long life? Is not the nervous-sanguine temperament more than any other like a balance-wheel or the pendulum of a clock? Is it not, after all, the great regulator of which the habits of these people are a manifestation, and to which is due their long life? And is it not something more than a regulator? is it not a repairer of waste and decay, a remedy more potent than any drug? I will not presume to answer these questions, for some of my more learned medical friends should be much better able to do so, in spite of these new facts which I have.

Without more accurate and more complete information in relation to the ages of the parents, grandparents, and the great-grandparents, and the brothers and sisters of these people in question, it is very difficult to make any deductions pertaining to hereditary longevity. Out of all the statistics that have been gathered, there are none which are full or accurate enough to base any theory upon, other than that a *tendency* to long life *may* be transmitted from parents to children. To gather the necessary statistics in relation to, say, 1,000 people from 80 to 90, would be extremely difficult, but it must be done before scientific thinkers can make deductions.

In order to mention all of the really remarkable things shown by this collection of facts, I should be obliged to make a serial of this article. I have tried to mention those only which seemed most interesting and important. One thing, to me, seems to stand out above all others: that a strong vital principle, manifested outwardly by firm build and constant activity, has been the chief cause of the advanced age of these people. Given a certain organization of mind and body, I think that a man may count on long life,—always barring accidents,—with reasonable certainty. Such an organization need not be put under any particular conditions of life; it will seek them out for itself, as a plant seeks out in the earth and the air such elements as aid its development. There is no reason that science can see why a raven should live longer than a snipe; but there is a reason, nevertheless: so we can see no reason why a tall, bony, muscular, light-skinned farmer should live longer than a short, stout, dark-skinned clerk; but I believe there is one, and one that science may some day discover.

I have one suggestion to make: that our national Government, when it takes the next general census, include in its statistics information about all the people in the United States above 90, the kind of information to be determined beforehand by the most eminent physicians and scientific men generally in this country or in the world. I believe that such information would be of more value to the world, after having been properly digested, than all the facts about the manufacture of cotton cloth, the raising of tobacco, the production of whisky, &c., that could be collected in a century. For do we not all desire to live long?—*Popular Science Monthly.*

Cellular Clothing.—The new cellular clothing now coming into use is a great success. It is woven out of the same materials as the common weaves of cloth, being simply, as its name indicates, closely woven into cells, the network of which is covered over with a thin fluff. Its porous quality allows the slow passing of the outside and inside air, giving time for the outside air to become of the same temperature as the body, obviating all danger of catching colds, and allowing vapours constantly exhaled by the body to pass off, thus contributing toward health and cleanliness. The common objection to cotton clothing—that it is productive of chills and colds—is removed if woven in this manner, and the invention can certainly be said to be strictly in accordance with hygienic and scientific principles.

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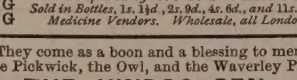

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"The child is father of the man."—*Wordsworth.*
"In bringing up a child, think of its old age."—*Joubert.*

CLOTHING OF CHILDREN.

MANY of the defects noticed in the boots worn by adults are almost as often seen in children's boots, yet it is of first importance that a child's foot should be kept warm and dry, and have room to move and grow. A child's feet are undeformed; let every care be taken that the first boots do not begin the distortion already referred to. The boot should be made to fit the foot on the lines laid down, the sole being *too large*, to the extent of a third of an inch in length and a sixth in breadth. A toe-piece about an inch and a quarter deep is of great service in protecting the foot, especially during rough games. To prevent the oblique displacement of the great toe, it has been suggested that a separator might be introduced between that and the next, as in the classic sandal or Japanese shoe.

However, there need be no fear about displacement of any of the toes if the boots be properly shaped and wide enough. Children need digitated socks as much as adults, except in the case of mere babies. All children, boys, girls, and infants, should wear woollen material next to the skin, up to the neck and down to the wrists. Combination garments, or little drawers and jerseys, may now be had of all sizes. Happily, nude knees and bare arms are not now in fashion—a fashion that has caused more lamentation and weeping than King Herod. What comes next is of little importance, provided that it be light, and easy, and warm. There is plenty of room for parents to display their good taste. Many of the costumes now most in favour for children are comfortable, healthy, and graceful.

After the "first layer" of clothing, I recommend a long waistcoat of stockingette web or flannel, and usually all that is needed beyond this comes under the head of costume. For a boy, let me suggest the familiar sailor dress; for a girl what can be better than knickerbockers, a waistless jacket, and kilted skirt? Hats and caps may be of almost any form, so long as they are light and warm enough, and shade the eyes from the sun. Straw hats are convenient and pretty, but as much cannot be said of the enormous bonnets now worn by little girls. These bonnets are really the most objectionable of modern innovations in children's clothing. They press somewhat on the crown, cover over the ears, limit the wearer's field of vision, catch the wind, do not fit the head, and are prodigies of ugliness.

Is there anything special to be said about infants? As a rule the infant is too abundantly clothed. At least it would be the better for the absence of that proto-garment—its broad flannel bandage. Mothers and nurses believe in this religiously, just as writers on "art dress" believe in the Roman toga and the Greek chyton, but such faith is misplaced. If put on loosely it overheats the child, if put on tightly it compresses the thorax and abdomen. Next, there are the "long clothes," which are objectionable, if for no other reason, because they put restrictions on the free action of the legs.

The long flannel petticoat is usually folded under, wrapping up the legs as in a parcel, and the long clothes over this hang down, as if to give the nurse a firmer hold of the infant. Of course anything which does not allow a baby ample space to breathe, cry, kick, and roll about is bad. It is hardly necessary to point out also that the change, come when it may, from long clothes to short clothes, is not without grave risk, and that many an infant thus catches its first bad cold, perhaps its last too. The problem how to clothe a baby is a very simple one. Let its things be of woollen material, woven or knitted, and let them fit. Everything should be of wool, but the bibs and diapers, and these, I may remark, should be washed, *not merely dried*, when they are wet.

On the much debated question: caps or no caps for babies? I decide for the caps. Little heads, like little chests, are very susceptible to cold, so it is a reasonable precaution to give an infant a light cap till nature provide one.—*Dr. Vacher in the "Provincial Medical Journal."*

THE HYGIENE OF THE SKIN.

No face, however comely, can be beautiful if it is disfigured with a rash; no body, however shapely, can but be more or less unsightly when covered with an eruption. It has been said that the fate of a kingdom has been known to turn on the shape of a woman's nose, and certainly personal appearance affects greatly the welfare of the individual. But, going deeper with our philosophy than this, there is the question of personal comfort, which comes in with full force.

It was a form of Inquisitorial punishment to keep irritating the surface of the victim's body. The old doctors used to say that if you were to put a joint into a vice and screw it up as tight as possible, that you had the equivalent of acute inflammatory rheumatic pain, and that if at this point you gave the handle of the vice one more turn you had then the pain of gout. So it is with eczema; its torments are often extreme. It is a disease which may be at the first very innocent and harmless, but at the last fatal to the individual. It has been known to last for half a century; it has been known to produce scrofula; it is said to have produced insanity. Yet, according to the highest authorities, it is curable.

The late Sir Erasmus Wilson said: "The *neglected* eczema of infancy and childhood may be prolonged for a life-time, and eczema is not infrequently one of the indications of broken health. It may alternate with other manifestations of disorder of internal organs, or may be associated with, or follow, disease of the kidneys, and so prove fatal. It may annoy the patients for many months or years, recurring with fresh force from time to time, changing with the seasons, and, as a complication of other diseases, contributing secondarily to the destruction of life.

We have occasionally, in the columns of HEALTH, explained what eczema is, and described how it first comes as a little watery vesicle, the contents of which, after a little time, may turn into matter, the skin upon the part drying up scaling, coming off, and leaving a surface red, and sometimes ulcered; all this attended with the most extreme irritation and itching. For a disease of this kind a new remedy, which a goodly number of medical reports pronounce efficacious, is certainly worthy of more than passing note. Within the past year a new agent for skin affections, Vinolia, has been brought from France into Great Britain, and, judging from the reports which have from time to time appeared in the medical journals, there would seem to be no doubt whatever that this drug is of marked value.

A medical man reported the other day that he had been

able to cure with Vinolia a case of eczema of twenty-five years' standing, which had resisted innumerable applications and continuous treatment during all those years. We do not for a moment suppose that Vinolia would cure all cases, though those who have used it extensively state that they have never known it fail to relieve itching and irritation, as soon as applied. Probably the drug will prove curative in most cases where it is employed, and it would appear certain that many troubled with skin affections cannot do better than try it.

It can be obtained of Roberts & Co., 76, New Bond-street, London, W., who make somewhat of a specialty of introducing Continental preparations into this country. A Vinolia Soap is also manufactured, and contains some free saponifiable soap instead of free alkali, rendering it specially adapted for skin affections and tender skins; but of this our readers shall have more anon.

THE NEED OF FAT FOODS.

The idea that fat is necessarily unwholesome is a mischievous one. The proper nourishment of the body requires a certain proportion of fat. The only objection we urge against fats as foods is the manner in which they are taken. In the form of rich cakes, pastry, fried food, melted fats, as used with salads, butter on hot bread or potatoes, and the like, fats are difficult of digestion, and often interfere with the digestion of other foods. Animal fats are, at least, in a free state, much less digestible than vegetable fats. Cooking renders most elements of the food more digestible; or, rather, cooking is a sort of partial digestion of most food elements.

Fats are, however, an exception to this rule. Cooking greatly increases the indigestibility of fats, which at best are hard to digest in a free state. The most acceptable form in which fats can be introduced into the body is in cream, in grains like corn or oatmeal, in such nuts as almonds and chestnuts, and in the legumes, as peas, beans, and lentils. When taken in this form fats are easily digested, and, when assimilated, serve to build up the brain and nerves and encourage the nutrition of other tissues. Butter is not an economical fat. The process of digesting butter is essentially a process of unchurning. The housewife, then, wastes her labour in churning the cream, and the butter-eater his in unchurning it. Besides, butter is rarely found in a perfectly sweet condition. As ordinarily made, butter will not keep longer than milk, unless kept on ice. Tainted butter is a most unwholesome article. It sets up a process of decay and fermentation in the stomach, and is wholly unfit to enter a human stomach. The same must be said of cheese. The latter article, if eaten at all, should invariably be first cooked. Heat destroys the germs present in cheese, and decomposes the poisonous compounds which it contains.

A dexterous management of the roller-shades of windows may be made to go a great way in promoting the coolness of rooms. Let the upper window-sash be lowered, and the inside blind or curtain placed outside and secured in position by passing its tassel-cord beneath the lower sash. Thus the window-glass is protected from the direct rays of the sun, and is, at the same time, cooled by the current of air that passes between the blind and window. An additional merit of the plan is that it promotes ventilation.

HABITUAL SLEEPLESSNESS.

Those who are engaged in hazardous and speculative pursuits, and who get into the habit of irregular business life, and particularly into the habit of laying out plans and devices which shall be "sure to win," are almost always checked, comparatively early in their careers, by disturbances commencing in the circulation. Their earliest symptoms are, commonly, those of mental strain and irregular action of the heart, followed by results leading to habitual sleeplessness, insomnia generated by habit.

In persons of vigorous constitution the habit of disregarding proper sleep, and the insomnia which springs from it, may go on for several years without any apparent bad effect. In time, however, it is certain to produce its natural consequences. The first indications of danger are irritability of mind and feverish excitement, followed by depression, pallor, and deficiency of appetite. These are succeeded by fits of unconsciousness, in which the affected person positively sleeps, and, it may be, sleeps soundly, without himself knowing the fact. In this way he gets rest, which for a little while may give a certain measure of relief; but soon the nervous failure increases, and one of two results succeeds. He either falls into a sleep which becomes a coma terminating in death, or he continues sleepless, unless artifically made to sleep by narcotics, and with progressing failure of power sinks into paralysis, to succumb from that affection.

In exceptional cases the insomniac makes a fair recovery. Under regulated mode of life, and especially under the regulation which leads the sufferer to go to bed at unusually early hours, such as eight or nine o'clock, whether he can sleep or not at first, habitual insomnia or sleeplessness may be cured without any artificial aid. It is, however, apt to return after mental strain or worry, and indeed may be expected always to return if the strain or worry be severe or prolonged.—*Dr. Richardson.*

Test in Arsenic for Wall-Papers.—No apparatus is needed beyond an ordinary gas jet, which is turned down to quite a pin-point, until the flame is wholly blue; when this has been done, a strip of paper suspected to contain arsenic is cut one-sixteenth of an inch wide and an inch or two long. As soon as the edge of this paper is brought in contact with the outer edge of the gas-flame, a gray colouration, due to arsenic, will be seen in the same. The paper is burned a little, and the fumes that are given off will be found to have a strange, garlic-like odour, due to the vapour of arsenic acid. Take the paper away from the flame, and look at the charred end. The carbon will be coloured a bronze-red; this is copper reduced by the carbon; being now away from the flame in a fine state of division, the copper is slightly oxidized by the air, and on placing the charred end a second time not too far into the flame, the flame will now be coloured green by the copper. By this simple means it is possible to form an opinion without apparatus, and without leaving the room, as to whether any wall-paper contains arsenic; for copper arseniate is commonly used in colouring wall-papers.

CHEMICAL ANALYSIS.—Dr. Drinkwater, Lecturer on Chemistry in the Edinburgh Medical School, undertakes the Analysis of Water, Foods, Wall-Papers, and of all other products and articles connected with Household Health and Commercial Interests. Terms on application to Dr. Drinkwater, Chemical Laboratory, 41, Chambers-street, Edinburgh.

Healthy Houses

"A happy home must be a healthy home."—*Anon.*

PURE AIR.

One evening last week I stepped on a tramway car to return home. The car was crowded, and just in front of me stood about 200 pounds of masculine selfishness muffled in furs, who had tarried too long at the still. A sufficient number of the ventilators were opened, but my neighbour opened two more and stood with the snow and cold air pouring in directly on his head and making it uncomfortable for all near by. On reaching my room I found my companion sitting in the room, heated by a base-burner and lighted by three gas jets. Every door and window were tightly closed, the snow packed about the windows outside making it impossible for any air whatever to enter. Here I had found the extremes,—one a ventilation crank and the other a crank who is always afraid of a current or exposure to a draught. While the fire burned I mused. There may have been some impossibility to the conclusions at which I arrived, but in my musings there was a dream of paradise. A new world formed about me, the population of which consisted of the resultant of these two opposing cranks. I mentally melted them together and produced an individual who knew what to breathe and how to breathe it.

Bread may be called the staff of life, but one will live longer without bread than without air. Men very seldom attempt suicide by starvation, but self-destruction is often wrought by breathing nothing, or by breathing poison. People who shudder at the thought of suicide and turn away from the contemplation of such melancholy ending of life, shut themselves up in closed rooms and begin self-destruction by a slow but sure process, prolonging the agonies of death through suffering years. We avoid contagion, accidents, and dangers, protect ourselves against exposure and the evils of intemperance and extravagance, yet we are ever careless regarding the air we breathe,—not only breathing it over and over again, but burn the purity and life-giving property out of it. We build our houses with close regard for convenience, economy, and appearances, but with almost criminal carelessness regarding comfort and sanitation. It has ever been so, and will probably largely remain so until my new generation, evolved from the union of my two cranks, shall have peopled the earth.

As the fire burned I mused some more. The gas-jets were burning low and yellow, the stove was throwing out heat from its acquired momentum, and a sense of languor and a half-painful dulness pervaded the room. I could have slept, and dreamed, and died there, the victim of a crank who, fearful of a "cold draught," invited suffocation. There were the gas and stove consuming more oxygen than the occupants of the room, with no fresh supply added from the air without, and I wondered how long it would take for these objects to consume all the oxygen the room contained. Dr. Hammond, in writing of pure air and ventilation, has given some important information regarding this subject. He says:—

"In regard to the extent of contamination produced in the air of houses by the artificial means of illumination employed, very definite results have been obtained. We know that combustion takes place at the expense of the oxygen of the air. Tallow, wax, spermaceti, oil, &c., contain as an average about ninety per cent. of carbon and twelve per cent. of hydrogen. In burning, the substances unite with the oxygen in the atmosphere, producing carbonic acid and water. In one hour I found a sperm candle burned away to the extent of 135 grains. In this amount are contained 108 grains of carbon, absorbing from the atmosphere 288 grains of oxygen to form 396 grains of carbonic acid, equivalent to 841 cubic inches.

"The room contained 1,500 cubic feet of air, and had it been perfectly air-tight and the candle had continued to burn for about forty-five hours, all the oxygen contained in its atmosphere would have been converted into carbonic acid. Experiment has shown, however, that air containing as much as ten parts of carbonic acid in 1,000 is not fit to be inspired; 841 cubic inches of carbonic acid were formed in one hour, and consequently 84,100 cubic inches of air, or 58·4 cubic feet, were so far deteriorated as to be unfit for the purposes of respiration. In twenty-five hours the whole air of the room would have been rendered injurious to health if respired, even if fresh oxygen had been supposed to take the place of that uniting with the carbon.

"My own experiments go to show that about 12,000 grains of carbonic acid are exhaled from the lungs of an adult man in twenty-four hours. In addition, over 5,000 grains of vapour of water are expired. A single candle in the same time causes the formation of 9,500 grains of carbon, or only about 2,500 grains less than the respiration of an adult man during the same period. But many kinds of candles burn away much faster and give rise, in being consumed, to a considerably larger quantity of carbonic acid, so that it is within the bounds of truth to say that a candle, while burning, in the main causes as great a deterioration in the atmosphere as does an adult person breathing in it during the same length of time.

"But gas poisons the atmosphere to a still greater extent. By accurate measurement I have found that a gas-burner in the room in which I am in the habit of sitting allows, when the gas is fully turned on, of the consumption of 4·25 cubic feet per hour. A cubic foot of coal gas gives origin, during its combustion, to about 1·25 cubic feet of carbonic acid, so that for each hour 5·31 cubic feet, or 4,322 grains of carbonic acid, are given off to the atmosphere of the room. For the twenty-four hours the quantity would amount to 128·50 cubic feet, or 103,728 grains."

If the air thus contaminated were allowed to remain in the room, it is here demonstrated that one such burner as above mentioned would cause more carbonic acid to be formed in a given time than is evolved from the respiration of eight adults, and, so far as the deleterious results of the carbonic gas are concerned, causes more deterioration of the atmosphere of a room than would result from the presence of eight persons.

These conclusions, as demonstrated by actual experiments, point out the great importance of careful and adequate ventilation. Many of the complaints lodged against plumbers would disappear if more attention were paid to the means of admitting fresh air. Houses are constructed with windows and doors, and ventilation apparatus are made for the intelligent use of all occupants. The gas-fitter so understands it, and his business is to get proper arrangements made for the safe supply of gas, and his work has nothing to do with windows and doors.

People do not want to return to the cabin, with its broad fire-place, open doors and windows, and tallow

dip, and residents in cities cannot be provided with them. Intelligent regard for health will supply this demand in the modern dwelling and in crowded cities. Here is no theory or expert needed. Common sense in a properly constructed building will supply the means of keeping the air fresh and pure.

I lowered the top sash and let the fresh air into my room. The gas burned brightly, the air was not oppressive, languor disappeared, and the room smelled fresh and sweet. I do not know what became of the ventilation crank, but the cold air crank was made a convert to the invigorating influences of pure air.

Blackheads.—In a note on grouped comedones, or blackheads, Dr. George Thin states that the treatment of the affection consists in stimulating applications to the skin. The circulation over the affected parts should be roused by friction with soft soap and the application of sulphur ointment. Friction with soft soap once in twenty-four or forty-eight hours, according to the susceptibility of the skin of the individual, and rubbing in at bedtime of the sulphur ointment, will, if persevered in sufficiently long, probably be found to effect a cure. When too much congestion or inflammation of the skin is produced, the treatment should be intermitted, and a soothing application of zinc ointment made for two or three days.

Why is it that a glass chimney makes such a difference to the light given by a lamp? Because it increases the supply of oxygen to the flame by producing a draught, and concentrates and reflects the heat of the flame; in consequence of which the combustion of the carbon is more perfect, and very little escapes unconsumed. Lamp glasses were invented by Aimé Argand, the inventor of the famous lamp which bears his name. He had been experimenting for some time in trying to increase the light, but to no purpose. On the table before him lay the broken neck of an oil-flask. This he took up carelessly, and placed it almost without thought over the wick. A brilliant flame rewarded this act, and the hint was not lost upon the experimentalist, who proceeded to put his discovery into practical operation at once.

The Brush and Comb.—In the purchase of a brush or comb, care should be exercised to see that a properly manufactured one is selected. It may seem like a little matter to attempt advice on so unimportant a subject, yet a great deal really depends on it. For if you get a brush or comb with silvery bristles, or teeth too sharp, the scalp will be scratched by the one, and the hair will be broken by the use of the other. A proper brush is one made up of bristles, varying with the individual as regards stiffness of them. The clusters should be evenly set into the back, equi-distant from each other, so that the whole surface of the scalp to which it is applied will be made up of bristles of slightly uneven length, so as to still further favour the brush in covering every portion of the scalp. By this means every hair will be rubbed down on both sides, and there will be no streaks or spots of the scalp left untouched. A proper comb is one whose teeth are even and regular, with points not sharp, but rounded. It should be held up to the light so as to detect any splitting or roughening of the teeth on the sides, for if they are rough, injury to the hair through breakage of the shaft will surely result. Should the teeth, through any cause, become so split the offending member should be carefully cut from the comb. The slight space of scalp that would then remain untouched would be of no moment, as the comb is not an article that is used for cleansing purposes, as is the brush.

Public Health

"Health is the first Wealth."—*Emerson.*

FUNERAL CEREMONIES IN PARIS.

In all countries death and the ceremonies of burial are sad and repulsive. In France, perhaps, decency is observed as well as in any country, thanks to the excellent organization of the Compagnie des Pompes Funèbres, which forms, so to speak, the administration of all the churches in Paris, exercising on their behalf the monopoly of funeral ceremonies. This company, whose monopoly is regulated by law, is a vast enterprise, possessed of exceptional resources, an immense number of horses and carriages, a numerous and well-disciplined *personnel.* Every year it takes charge of about 50,000 funerals, about half of which are those of the poor. Thanks to this enterprise, even the poorest citizens are buried with some show of decency, and in conformity with strict rules.

The administration of the Pompes Funèbres is situated in Paris, in the Quaie d'Aubervilliers. It is a big, heavy, white stone building, built round a vast glass-roofed court-yard. To the right and left of the entrance doors are the offices of the director and the bookkeeping department. In the court-yards are the store rooms, the stables, the coach-houses, and the harness rooms. Everything is black, sombre, and silent; everything is rigorously numbered and ticketed, classified, and arranged for immediate use. The *porteurs,* or bearers, commonly called *croquemorts,* have a big room furnished with oak benches, where they assemble every morning, 400 in number, to await orders,—gloomy, serious, clad in various styles, some with blouses, but most of them in jackets.

Over this room are other rooms, with cupboards running down the middle in double rows. Each cupboard is numbered and fitted with a lock, the key of which the correspondingly numbered *croquemort* keeps. In these cupboards are kept the uniforms of the bearers, who dress before going out on service and undress when their service is over, only wearing their regulation costume when on duty. The masters of ceremonies have each a private room to dress in. Their uniform consists of a cocked hat, coat, knee breeches, silk stockings, buckled shoes, a court sword, and a wand. This personage is paid by the day, so much for each funeral. His duty is to arrange the procession in proper order, to fix the order of the precedence among the mourners, and to start the funeral.

Beneath the vast building of the Pompes Funèbres are cellars dimly lighted with gas jets, and full of rows and rows of coffins of all sizes and qualities. This cellar contains a stock of 15,000 coffins ready for use, varying in length from six feet two and one-half inches down to twenty-seven and one-half inches, which are the regulation maximum and minimum sizes of dead French humanity. For persons taller than six feet two and one-half inches a coffin has to be built on purpose, and to order. On one side of the cellar are the lead coffins, and in one corner a stock of square boxes in which coffins are packed for travelling by rail or steamer without attracting attention.

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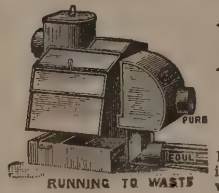

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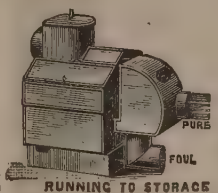

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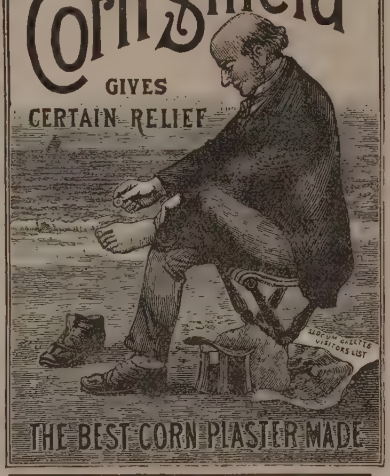

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are used only when some terrible epidemic is decimating the population. The price of the coffins, of the inner lining, and of the covering pall, are all regulated by an immutable tariff. In 1870, during the siege, the little hand-carts, painted green and lined with black, had to serve universally as hearses, for all the horses had been killed for food.

THE IMPORTANCE OF FORESTS.

SPEAKING of the benefits of forest cultivation, Prof. Edmund J. James, of the University of Pennsylvania, says :—

At least twenty per cent. of the whole agricultural region of any country should remain in forest for the good of the other eighty per cent. Twenty years ago it was estimated that 10,000,000 acres of forest land were cleared each year in this country, and that such a rate of consumption would clear out all woodland belonging to individual citizens. Few people are aware of the peculiar relation the forests bear to our national prosperity. How many know that the value of the forest products of the United States amounts to more than $700,000,000 annually? But the increment of wealth which that yield represents is not the most important consequence of the growth of forests, and the argument that they should be preserved and fostered and protected for fear that a scarcity of timber will follow is not the only one to be presented in behalf of their sustenance. A more important one is that they determine, to a great extent, climatic and hygienic conditions. Whether the presence of forests increases the rainfall in a given area is a disputed question; but that they bring about a much better distribution of moisture through the year is not doubted. The forests are beyond question the regulators of the character of both our great and little streams. Thus they affect navigation, and the whole transportation system of the country. They affect manufacturing, for factories and mills could not be founded along a water-course which is a torrent one-fourth of the year and a dry bed during a like period. They affect the water-supply of our great cities. Cut away the forests at the source of the Ohio River, and the agricultural interests of the lower Ohio basin would virtually be ruined. Trees purify the atmosphere, drying it when too damp, and moistening it when too dry. They are manufacturers of ozone. It is an indisputable scientific fact that the greatest immunity from consumption exists where large areas of pine forests stand.

As great a destroyer as the axe is to our forest, it has been demonstrated that browsing animals and forest fires are quite as destructive. The damage done by these destroyers can to a great extent be prevented by wise legislation strictly enforced. If all the forests were cut off from the American continent the greater part of it would become, in half a century, a howling wilderness, incapable of supporting man or beast. As we are cutting off our forests much faster than we are reproducing them, what is to prevent them from entirely disappearing? A wide and extensive care on the part of the Government is necessary. It is a bad policy to hand the timber resources of the country over to private parties independent of all Governmental control. Thirty million vigorous young trees are destroyed annually by contractors with railroads for the getting out of ties. The unsolved problem of this vital question can be worked out the most satisfactorily, and the most and best knowledge on this subject distributed, by schools of forestry.

Popular Science Papers

"Blessings on Science! When the Earth seemed old,
When Faith grew doting, and our reason cold,
'Twas she discovered that the world was young,
And taught a language to its lisping tongue."

—*Charles Mackay.*

INDIA RUBBER.

SPEAKING of an India Rubber exhibit by Messrs. C. Macintosh & Co. at a late exhibition, Professor Watson Smith says :—

Probably no exhibit illustrating the India rubber industry has ever before been shown of so complete a kind.

The articles exhibited are the entire trunk of an India rubber tree (*Siphonia elastica*), specially obtained from South America, and from which fine Para rubber is obtained. It is a tree inhabiting dense forests on the banks of the Amazon and several of its tributaries, where it is called the "*Seringue*." The chief district from which its caoutchouc is obtained is, according to Wallace, the country between Para and the Xinqui River. The "*Siphonia*" species comprises trees varying from twenty-five to upward of one hundred feet in height, and all contain a milky juice in more or less abundance, though they do not all yield caoutchouc of good quality, that from some of the species being brittle. The fruit is a rather large capsule, composed of three one-seeded pieces, which split in halves when ripe. The raw seeds are poisonous to man and to quadrupeds; but macaws eat them greedily, and they are an excellent bait for fish. Long boiling deprives them of the poisonous principle, and renders them very palatable. The bulk of the caoutchouc exported from Para, whence our chief supply comes, is obtained from *S. brasiliensis*, which is the one common in the forests of the Province of Para; but that brought down the Amazon and Rio Negro is derived from *S. lutea* and *S. brevifolia*. The thin, white milk is obtained by making incisions in the trunk, from which it exudes. The trunk exhibited is thus punctured, and a pocket-shaped receptacle of clay has been attached just below the puncture so as to represent the way in which the milk is caught. This clay receptacle is furnished with a lip, so that the milk overflowing may be caught in the earthen vessels used by the native workpeople.

This clay receptacle to the tree holds about a tumblerful, and it requires about three hours to fill if the tree be fruitful; this will give an idea of the rate of flow. When the first cutting ceases to yield, the natives make a second one lower down, and so on until they have exhausted the milk in the tree, which is done by making in all four incisions, all at equal distances. They then pour the milk into larger vessels, gather heaps of Urucari or Inaja nuts, which yield a thick oily smoke, and set them on fire. Now they begin the manufacturing process by covering the wooden forms for sheets, long and flat bottles, &c., with clay (so as to be able to detach the rubber easily afterward), dip the forms into the milk, and hold them over the smoke. As soon as the milk is dry, they dip them a second time, and so on till the rubber is of sufficient thickness, they then take it off the form, and it is ready for exportation.

A tree cannot be again made use of for two years, as it requires that time to recover its exhausted strength. A section of a rubber tree is shown, measuring about 18 inches in diameter, also a bottle of the white milk brought

from Para, and now coagulated. The actual trunk of the tree is so arranged as to appear to form the foreground of a picture in which the scene is completed in a very ingenious manner, as a painting, the foliage of the trees being represented, the natives at work curing the rubber, carrying the milk, &c.; a small sapling (*Ficus elastica*) actually growing, and planted close to the picture referred to, assists still further the imagination of the visitor. Specimens of the Urucari nuts are shown, and also of crude rubber as imported—fine Para, negro head or Senamby, Mangabeira, and Ceara.

In the other parts of the exhibit are three other pictures portraying all the details of the native work—the collecting of the rubber from the trees, smoke curing, a rubber collectors' settlement, and a river boat. An actual specimen of such a boat, made of rubber, is also to be seen. Specimens of washed Para rubber, pure solid rubber block, and fine cut sheet used for making tobacco pouches, elastic bands, surgical bandages, &c., are shown, along with drugs, chemicals, and pigments used in the manufacture of rubber goods. Very interesting also are the six specimens illustrating the products of destructive distillation of caoutchouc.

The manufacture of Elastic Rubber Thread is one of the most important branches. This thread is used for weaving with silk or cotton into elastic webs for boots, braids, and other articles of dress. Among these threads are some exceedingly fine vulcanized varieties shown by this firm. A considerable variety of articles used for mechanical purposes is shown, and also a convenient form of matting recently introduced, which is finely ribbed. It is used as floor cloth, and presents several advantages in such use; it is styled "Rabdotos." There are also waterproof and airproof fabrics and all varieties of garments, mattresses which can be used on board ship, and, by being inflated, will, in case of necessity, serve as rafts. A camp equipment is shown, consisting of bed, air mattress, folding bath, and bucket, playing balls, Macintosh tennis balls, and elastic bands.

The works of this firm were first estabished in 1824 by Mr. Charles Macintosh, who first applied India rubber to the waterproofing of articles of clothing, whence the term "Macintosh." The processes used to render rubber non-adhesive and insensible to cold, usually termed vulcanization, are the inventions of Mr. Thomas Hancock, one of the members of the firm. The effect of vulcanizing is also to make the rubber permanently elastic, as well as insensible to cold or heat, besides resisting largely the dissolving action of oils or fatty matters. Vulcanization has enabled rubber manufacturers to produce articles applied by engineers in machines driven by steam or otherwise.

While the value of kindness in discipline can hardly be over-estimated, it must be admitted that suasion alone will not avail for every instance in which a pupil's will is idle or obstinate. Boys are well aware of this, and are apt to look for something more as constituting an authority worthy of obedience. Hence, it is argued by experts in training that it is unwise, and, in the end, unkind, always to spare the rod. But all striking at random must be condemned, and particularly such barbarity as boxing the head and ears. Nature has furnished a part, well cushioned, but sensitive enough, well adapted to the exercise of chastisement, upon which any punishment within reason will fall harmless.

Jottings from the Journals

"Th' ingredients of health and long life are
Great temperance, open air,
Easy labour, little care."—*Sir Philip Sydney.*

The Dread of Death.—Sir Lyon Playfair, in a letter to Junius Henri Browne, author of a paper under the above title (see Health Nos. 300 and 301), says: "Having represented a large medical constituency (the University of Edinburgh) for seventeen years as a member of Parliament, I naturally came in contact with the most eminent medical men in England. I have put the question to most of them, 'Did you, in your extensive practice, ever know a patient who was afraid to die?" With two exceptions, they answered, 'No.' One of these exceptions was Sir Benjamin Brodie, who said he had seen one case. The other was Sir Robert Christison, who also had seen one case,—that of a young girl of bad character who had a sudden accident. I have known three friends who were partially devoured by wild beasts under apparently hopeless circumstances of escape. The first was Livingstone, the great African traveller, who was knocked on his back by a lion, which began to munch his arm. He assured me that he felt no fear or pain, and that his only feeling was one of intense curiosity as to which part of his body the lion would take next. The next was Rustem Pasha, now Turkish Ambassador in London. A bear attacked him, and tore off part of his hand and part of his arm and shoulder. He also assured me that he had neither a sense of pain nor fear, but that he felt excessively angry because the bear grunted with so much satisfaction in munching him. The third case is that of Sir Edward Bradford, an Indian officer now occupying a high position in the India Office. He was seized in a solitary place by a tiger, which held him firmly behind his shoulders with one paw and then deliberately devoured the whole of his arm, beginning at the end and ending at the shoulder. He was positive that he had no sensation of fear, and thinks that he felt a little pain when the fangs went through his hand, but is certain that he felt none during the munching of his arm."

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The Human Engine.—On a broad but correct view of matters we transform into human energy the force we derive from energy supplied us in our food. The human body is, in one sense, a machine, which, out of the store of fuel (or food) with which it is supplied, develops a very large amount of power indeed. Let us see what Lord Armstrong has to say about the steam-engine and its work of utilizing fully and completely the stores of energy it receives in the shape of its fuel and water. Modern machinery has doubtless been much improved since the remarks were made which we are about to quote, but we may take it as a sober fact of mechanical science that there still exists a vast amount of wasted energy in the working of an ordinary steam-engine. Less than one-fifth (or not more than 18 per cent.) of the energy produced by the fuel is given back by an ordinary engine in the shape of work done. Lord Armstrong's remark is to the effect that, if the whole potential or possible energy locked up in the coal were divided into ten parts, we should discover that two parts went "up the chimney," that one was lost by radiation and friction, and only *one* part represented work done, six parts being absolutely wasted. This is a startling calculation, and although recent improvements in machinery have probably reduced the absolute loss of energy which

a steam-engine exemplifies, there can be no gainsaying the fact that beyond a given stage improvement cannot well pass, and that, therefore, the steam-engine will always be a relatively expensive machine. If the price of coal increased materially we should begin to find this relation between fuel consumed and work done a very startling one in so far as its monetary equivalent was concerned. When we turn to the story of the living body in relation to its consumpt of food as fuel, and to the work it does, we find an amazing difference between the living machine and the mechanical contrivances of man's invention. "Observe," says Lord Armstrong, "how superior the result is in nature's engine to what it is in ours. Nature only uses heat of low grade, such as we find wholly unavailable. We reject our steam as useless at a temperature which would cook the animal substance, while nature works with a heat so mild as not to hurt the most delicate tissue. And yet, notwithstanding the greater availability of high-grade temperature, the quantity of work performed by the living engine, relative to the fuel consumed, puts the steam-engine to shame." These words, coming as they do from one of the highest authorities on mechanical force, are well worth the attention of the student of physiological science. It behoves us now to notice the details of the human body regarded as an engine for the production of energy, this energy being clearly produced from the consumption and utilization of the food or fuel on which we subsist.—*Glasgow Herald.*

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The Island of Lepers.—The Island of Molokai is the leper settlement of the Hawaiian Isles,—one of the saddest spots on earth, yet relieved by the noble example of such devoted lives as those of Father Damian and his fellow-workers among its death-stricken population. The total population, according to the last report of the Hawaiian Board of Health, was, on April 1st, 1888, 942; of this number, 749 were lepers, 144 friends or relatives (called in the vernacular kokuas) of lepers, and 38 peasants (kamaainas) or aboriginal inhabitants of the island. Of the 749 lepers on the island, 492 were males and 257 females. Nearly all were Hawaiians, but there were 6 British subjects, 2 Germans, 1 Pole, 1 American, 1 Belgian, 1 Russian, 23 Chinamen, 1 Raratonga native, and 1 South Sea Islander. The annual death-rate for the year ending March 31st, 1887, was 18·6, and for the year ending March 31st, 1888, was 18·1 per cent. of the average leper population of the leper settlement. It may be here added that of 66 kokuas, that is to say, persons who, when they entered the settlement, were presumably not lepers,—23 were found, when recently examined, to present unmistakable signs of leprosy, while 11 more presented symptoms which caused the medical examiners to declare them to be "suspected lepers." The inhabitants of this island form a strange community, united together, if we except the kamaainas, by a ghastly bond, but occupied, many of them, in the ordinary avocations of peasants; it is a community to some extent self-supporting, possessing herds of cattle and droves of horses; peaceable, loyal, too, killing a steer each year "for feasts on His Majesty's birthday"; somewhat agitated about a new water-supply; and generously treated by a paternal Government, which provides them with food, lodging, fuel, and other necessaries, at a total cost for each leper of about seventy dollars a year. In this estimate is included a sum of ten dollars a year given to each leper, and intended to be applied by him or her chiefly to the purchase of clothing. The community possesses no less than five churches,—two Protestant, two Roman Catholic, and one Mormon. There is a large and commodious hospital, two dispensaries, a commodious house for a physician, and two dormitories for friendless and parentless boys and girls respectively. A free ration, said to be ample for the wants of a Hawaiian, is issued weekly, and a "store" or shop is maintained where all sorts of goods can be obtained at reasonable rates. A physician, who is paid a liberal salary, lives on the island, but there is a dearth of good nurses, who can be of the greatest use.—*British Medical Journal.*

Our Letter-Box

"Conference [maketh] a ready man."—*Bacon.*

NOTICES TO CORRESPONDENTS.

All Communications for the Editorial Department (including Books for Review, Specimens of Sanitary Appliances, &c.), to be addressed to "THE EDITOR OF HEALTH," 2, PATERNOSTER-SQUARE, LONDON, E.C. *Those intended for the Publishing Office to be sent to* MR. A. P. WATT, THE PUBLISHER, *at the same address.*

RULES FOR CORRESPONDENTS.

OWING to the mass of letters which reaches us each week, we respectfully direct the attention of Correspondents, desiring replies in the LETTER-BOX DEPARTMENT of HEALTH, to the following rules:—

1. **All questions are answered free of charge in the columns of HEALTH. A limited space only, is available for the insertion of replies each week.**
2. **All letters must be legibly addressed to "The Editor of HEALTH, 2, Paternoster-square, London, E.C.," *and to no other address.***
3. **Questions to which answers are desired by post, are so replied to solely at the Editor's discretion. If no answer is sent by post, the query will be replied to in the "Letter-Box" columns of HEALTH. A stamped addressed envelope must accompany all queries to which a private reply is desired.**
4. **Addresses of physicians and surgeons will, as heretofore, be forwarded FREE to Correspondents on their enclosing a stamped addressed envelope for reply.**
5. **Correspondents are requested to write on one side of the paper only, and to make their inquiries as brief as may be consistent with clearness.**
6. **From the necessity of sending HEALTH to press early in the week, no Correspondent can be replied to in the "Letter-Box" columns in the same week in which the inquiry is received. Replies crushed out of any issue will be found in the succeeding number.**
7. **No Post Cards must be used in sending queries. Violation of this rule deprives the sender of the privilege of a reply.**

QUERIES AND ANSWERS.

REPLIES: GENERAL, SANITARY, AND MEDICAL.

[Readers of HEALTH will kindly note that when back numbers of the journal are desired, the letters containing such requests and stamps for the numbers should be addressed to the PUBLISHER of HEALTH, 2, Paternoster-square, London, E.C., and *not to the Editor.*]

LEX.—By all means, use Vinolia as an application to the excoriations. We think what you complain of is due to a form of irritability not uncommon at your age. Try drinking a tumblerful of hot water, between your meals, thrice daily; and note the effect of taking twenty grains citrate of potash in a tumbler of water at bedtime. The Cascara Cordial and vegetable diet may prove useful to you, inasmuch as constipation is often a cause of the symptoms which trouble you. Glad to be of any further service.

IRRITANS.—Wash the affected parts with Vinolia Soap, and apply Vinolia itself after washing, morning and night. Oblige us by letting us know how this treatment benefits you. We are anxious to secure the independent testimony of our readers to the value of this excellent remedy.

"ELECTRICITY IS LIFE."
(TRADE MARK.)

PULVERMACHER'S

WORLD-FAMED

GALVANIC BELTS,

FOR the CURE of NERVOUS DISEASES,
HAVE RECEIVED TESTIMONIALS from
THREE PHYSICIANS to
HER MAJESTY the QUEEN,
THE ACADÉMIE DE MÉDECINE of Paris and
FORTY MEMBERS of the
ROYAL COLLEGE of PHYSICIANS of LONDON.

RECENT TESTIMONIALS.

GALVANISM *v.* GENERAL DEBILITY AND WEAKNESS.
3, Morpeth-terrace, Victoria-street, Westminster, 4th March, 1889.
Dear Sir,—I wrote to you a year ago telling you of the great benefit I had derived from your treatment, and you will be pleased to hear that the cure is permanent. I have had several inquiries respecting my case, which I willingly answered. I had a letter to-day from a young man in Northampton, and I gave him all the particulars of my case, and strongly urged him to give your appliances a trial.—Yours faithfully, W. BROWN.
Mr. Pulvermacher, 194, Regent-street, W.

GALVANISM *v.* EXTREME NERVOUS EXHAUSTION.
52, Argo-road, Waterloo, Liverpool, 1st March, 1889.
Gentlemen,—In September last I sent to you for one of your Combined Bands for my wife, who was then suffering from extreme nervous exhaustion. I now wish to bear testimony to the great benefit she has derived from its use. She is now quite restored, and has discontinued its use for the past three months. I would be glad to have a few pamphlets, so that I could advertise the benefit of your treatment. The one you sent me I gave away to a friend.—Yours faithfully, THOS. S. NEWCOMBE.
Messrs. J. L. Pulvermacher & Co., 194, Regent-street, W.

GALVANISM *v.* NERVOUS EXHAUSTION.
Kirkby Lonsdale, 20th Feb., 1889.
Dear Sir,—You will be pleased to hear that I have derived a great amount of benefit from your treatment, and since wearing your Galvanic Belt I am another man altogether. Before wearing the Belt I was very low and nervous, but now I feel quite different.—Yours truly, G. WORMNELL.
Mr. Pulvermacher, 194, Regent-street, W.

GALVANISM *v.* NERVOUS DEBILITY.
Outlane, Huddersfield, Feb. 19th, 1889.
Dear Sir,—I am pleased to inform you that your Galvanic appliance has effected a complete cure in my case. I have discontinued wearing the Belt long since, and have lent it to a friend, who is also deriving great benefit from it. I shall always recommend your treatment to any one suffering from nervous debility.—Yours truly, W. H. DODSON.
Mr. J. L. Pulvermacher, 194, Regent-street, W.

GALVANISM *v.* SCIATICA.
53, Beresford-road, Oxton, Birkenhead, 16th February, 1889.
Dear Sir,—I am glad to inform you that the patient whom I recommended to have your Galvanic Belt is now permanently cured. Before wearing the appliance he had suffered much from Sciatica, was at Buxton for six weeks, then at Droitwich, and had morphia injected frequently to induce sleep. The night before he wore your Belt he had morphia, but no sleep; but the second night after wearing the Belt he had several hours' natural sleep, and the next night still more, until now he is able to come to his office every day, and attend to his business as usual.—Yours faithfully, H. HOPE.
Mr. J. L. Pulvermacher, 194, Regent-street, W.

GALVANISM *v.* GOUT AND SCIATICA.
Sudbury, Suffolk, 4th February, 1889.
Dear Sir,—With grateful heart I write to inform you that I am now perfectly free from both gout and sciatica, and I certainly was never better in my life. My neighbours and friends are quite astonished to see me running about; as before wearing your Belt I had for a long time past been unable to walk without the aid of two sticks. I consider your treatment a wonderful scientific invention, and I will answer any inquiries.
Faithfully yours, H. CAVE.
J. L. Pulvermacher, Esq., 194, Regent-street, W.

GALVANISM *v.* NEURALGIA.
23, John-street, Rochdale, 2nd February, 1889.
Dear Sir,—My daughter having suffered for three years from this distressing complaint, was advised to try your Galvanic Belt, which she did, and after wearing it for a short time she was completely restored, and has not worn the Belt since. That is nine months ago. Before trying your treatment my daughter was laid up for two years, and was under five doctors, but now she is well and hearty, and I hope by the publishing of this testimonial other sufferers may be persuaded to try your treatment for neuralgia.—Yours very truly, (MRS.) A. SHAW.
Mr. Pulvermacher, 194, Regent-street, W.

GALVANISM *v.* NERVOUS EXHAUSTION.
The distressing symptoms of Nervous Exhaustion and Debility are speedily removed by means of PULVERMACHER'S world-famed GALVANIC BELTS, which are so arranged as to convey a powerful electric current direct to the affected parts, gradually stimulating and strengthening all the nerves and muscles, and speedily arresting all symptoms of waste and decay.

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FOR FURTHER TESTIMONIALS, both Medical and Private, see new Pamphlet, "GALVANISM: NATURE'S CHIEF RESTORER OF IMPAIRED VITAL ENERGY," post free on application to

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GALVANIC ESTABLISHMENT,
194, REGENT-STREET, LONDON, W.
(ESTABLISHED OVER FORTY YEARS.)

JOHN HUNTER.—Try the hair lotion recommended to "Plim" in HEALTH, No. 308; if this does not effect a cure, apply to the French Hygienic Co., 6, Conduit-street, London, W., for a dye of harmless nature. If you get up to your standard of general health, your hair will likely recover its tone. As a means thereto, try a teaspoonful of the Syrup of the Hypophosphites, sold by Messrs. Inman, druggists, of your city (Shandwick-place), in a wineglass of water, twice daily, after meals.

SOHO.—Remove the hairs all round the affected parts, in the first place. Wash each morning with "Sanitas" Soap and tepid water. Thereafter paint the patches with sulphurous (*not* sulphur*ic*) acid. If this treatment fails, apply a lotion consisting of hyposulphite of soda, of strength thirty or forty grains to the ounce of water. See to the general health. Give a dessertspoonful of Scott's Cod Oil Emulsion, thrice daily, after meals.

T. B. B.—Try the effect of the following as a hair-application, and brush the hair night and morning thoroughly with a pair of very soft brushes; use no hard brushes or combs: Castor oil, four drachms; almond oil, twenty-eight drachms; glycerine, twelve drachms; rectified spirits, four drachms; Jockey Club perfume, eight drachms. Mix. Label: "Rub a little into the roots of the hair each morning."

NETTALL.—Read the pamphlet "A Lecture to Young Men" (post free for 1s. 1d., from Mr. Renshaw, 356, Strand, London, W.C.); attend carefully to what is there said regarding diet and the use of tonics.

B. S.—Try the following:—Carbonate of bismuth, ten grains; wood charcoal, ten grains; bicarbonate of soda, five grains. Mix. One such powder to be taken thrice daily, half an hour before meals, when you are troubled with acidity.

PIERRE.—Apply to the parts a lotion composed of bicarbonate of soda, one drachm; and glycerine, an ounce and a half. Wash frequently with Bayley's Spermaceti Soap and tepid water.

O. A.—Try the Saccharin Tabloids made by Messrs. Burroughs, Wellcome & Co., Snow-hill, London, E.C.

B. G. L.—Use Woolley's Sanitary Rose Powder. Wash the parts night and morning with soft water, and look to the underclothing.

PETER HAY.—Try a vegetable dietary,—stewed fruits, apples or oranges, &c., and whole-meal bread, with Scott's Oat Flour for supper and breakfast; avoid tea and coffee; take Cascara Cordial, twenty drops in water (or two Tabloids), between meals, once or twice daily. Sponge with cold water each morning; sleep on a hard mattress; take plenty of open-air exercise; and avoid fluids and suppers late at night.

L. MARSTON.—Try the following:—Thymol, one scruple; rectified spirit, three drachms; light carbonate of magnesia, ten grains; water, to make up three ounces. Label: "A teaspoonful to be added to a pint of water (at 150 degs. Fahr.), and the vapour to be inhaled for some minutes, once or twice daily." Take care of chill after such inhalations.

SOLUS.—Begin treatment by taking ten or fifteen drops Cascara Cordial once or twice daily, an hour before food, in water. Let the effect of this upon the constipation be watched, and eat freely of Dahl's Cakes, stewed fruits, whole-meal bread, &c., and drink Pitkeathly Water, avoiding alcohol.

NINETEEN.—Wash the hands with Bayley's Soap and tepid water, and use thereafter a dusting-powder composed of powdered oxide of zinc, one ounce; powdered camphor, one drachm; and starch, two ounces. Mix. Label: "The Dusting-Powder, for external use only." Woolley's Sanitary Rose Powder should be used alternately with the dusting-powder.

SEX.—Take a claret-glass of Vin Mariani (Roberts & Co., New Bond-street, London, W.) before your meals, twice or thrice daily, as an excellent tonic for your case; and try a cold or tepid sponge bath each morning.

S. A.—Read "A Lecture to Young Men" (post free for 1s. 1d. from Mr. Renshaw, 356, Strand, London, W.C.), and you will find full information regarding your case therein.

LECTOR.—Try the following as a likely preventive of boils: Sulphide of calcium, twenty-four grains; sugar of milk, half an ounce. Mix well, keep in a stoppered bottle, and take as much as will cover a sixpence every four hours. Take a dose of Lamplough's Pyretic Saline in the morning occasionally.

J. A. GIBSON.—You should give up your "hobby," as you call it, and don't worry your brain over such trifles. Surely you have more serious work in life to do than to worry yourself about words.

READING-THANKHAM.—Take twenty grains bromide of potash when you go to bed at night, in a wineglass of water; not regularly, but occasionally, as your symptoms may demand; and you will find this to relieve them. For the rest, live plainly, and take plenty of outdoor exercise. You are quite well otherwise.

CONSTANT READER [will please use a more distinctive name in future].—What you name is, probably, due to an acid state of the secretions. Take fifteen or twenty grains of citrate of potash

in half a tumbler of water; and, for the rest, read the pamphlet, "A Lecture to Young Men"—post free for 1s. 1d. from Mr. Renshaw, 356, Strand, London, W.C.

R. E.—In your case, we should trust largely to a milk diet (peptonized by using Fairchild's Powders), along with ordinary light food—white boiled fish, chicken, Brand's Beef Essence (used for soups), and milk puddings. You are right in eschewing drugs, which, in your case, are apt to do harm. The "Cakes" may be used, but, in your case, with care, of course, as your mucous membrane is so irritable. Possibly, a pill containing two grains sulphate of quinine, taken once daily, an hour before food, might aid your cure.

Mary C.—You have simply caught a slight cold. At night, use the inhalation of Sanitas Oil ordered to "A. Sloman" in last week's Health, and rub the chest with Bow's Liniment over the affected parts. See that you clothe warmly in Forsyth's Woollen Clothing (17, Renfield-street, Glasgow), and stay indoors, and in an even temperature, till you are well. Take, after your meals, a dessertspoonful of Scott's Pure Cod Oil Emulsion, as a suitable tonic. Write again, if not bettered.

Hoping.—The cure you mention is one which is said to be successful. Try tying a book between the knees. But your wisest course is that of consulting a good surgeon, who will advise you as to boots and other means.

Mater.—1. We do not approve of the hair-restorer you name. 2. Try the effect of taking twenty grains bromide of potash in a wineglass of water when your symptoms trouble you. It is not unlikely that your mental worries are the cause of your symptoms. Let your food be plain, and of easily-digested character. If not cured, write again. Many thanks for good wishes.

W. B.—The age you name we should regard as rather young to begin lessons; although there is an advantage certainly in many cases in commencing early. Habit is a very powerful agent, as you are aware, in education. We should advise you to state the case to Professor Loisette, and be guided by him. It is an excellent system.

Veritas.—What you name is not uncommon as a result of low health. We should recommend you, first of all, to try the effect of a tonic—such as Easton's Syrup (Seller's), taken in a teaspoonful dose, in a wineglass of water, twice daily, after food. Exercise your eyes as little as possible at night; or wear for a time plain glass preservers tinted light blue. A suitable lotion which you might also try is made by adding six grains sulphate of zinc to six ounces of rose water. Use a little of this diluted, morning and night.

Innocence.—Use an injection night and morning of tepid water to which a little Condy's Fluid has been added. What you name will disappear when your health has been thoroughly re-established. Take fifteen drops Fer Bravais after your meals, twice daily, in a little water; and write again if not cured.

B. G. H.—1. Apply to the Medical Battery Company, 52, Oxford-street. They will advise you regarding the treatment you name. 2. No; but the phrase is applicable in other ways. 3. The word is "electrolysis"; and is applied variously, as you indicate.

Rex.—He might do so perfectly well. The diet you name is more liberal than that of many strong peasants, but you have to take digestive power and exercise and general health into account, as forming part of the "personal equation." The class you name are not pure vegetarians; and you are unfortunate in selecting them as examples. A peasant living on potatoes chiefly, with milk added, does not possess a diet sufficient for active work. The story of Irish famines tells its own tale of under-nutrition and its effects.

Hard-Skinned Patient.—Paint the lumps regularly, twice a day, with tincture of iodine till the skin becomes tender; and, internally, take a dessertspoonful of cod liver oil, to which your chemist should add sufficient syrup of the iodide of iron. You require such a tonic and nutrient.

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Rubicus.—What you name is often due to digestive ailment. See, first of all, to your food, which must be plain and simple; and rest after your meals, rigidly, as a necessary law of health. Give Horsford's Acid Phosphate a trial, as a tonic likely to do you good, following the directions given on the bottle. Avoid cheese, salt meats, pastry, and like indigestibles. Your diet, we may add, should be generous in character, and a little stout, taken to dinner each day, may benefit you. Let us hear how this advice affects your case.

Tinaling.—We have no confidence whatever in the treatment you name. Your only wise plan is to go to a good surgeon, who will advise you regarding a suitable truss. Your present one is not at all suited to your case, judging from your account of it. The Medical Battery Co., 52, Oxford-street, London, W., make a capital truss, and send directions for self-measurement. If in London, call and be fitted there.

Crane.—1. Apply to Mr. Pulvermacher, 194, Regent-street, London, W., and he will advise you regarding treatment. 2. The system you name is not practised at all in this country. 3. Preferably the second.

Cynicus.—You are suffering from abuse of tea. Substitute Van Houten's Cocoa therefor, and your troubles will probably disappear.

B. L.—1. Use the Oriental Aromatic Salts to soften the washing water, and use Bayley's Soap. 2. Bayley's Cure for piles (17, Cockspur-street, London, W.) should be tried by you. 3. Mellin's Food should be substituted for that you use at present.

J. Potter.—1. See and follow advice given to "Rubicus" in the present number. 2. If you were not benefited by the hair-wash recommended, and will let us know which wash you used, we will advise you again.

Veritas (Airdrie).—Give the diet-rules and other hints contained in the pamphlet a fair trial, and you will probably find you need no further treatment. If, after a trial of these rules, you find you require the appliance named, by all means try it.

A New Disciple of Health.—See advice given to "R. Mair" in Health, No. 308.

E. Rutland.—1. Are you sure your boots are thoroughly dried? Change your socks frequently, and wash your feet each morning, dusting on them after washing a little of Woolley's Sanitary Rose Powder. If not cured, write again. 2. A long dream may occupy in reality only a few seconds, or at most a minute or so. No functions of life are "suspended" in sleep in the sense you mean. There is only withdrawal of consciousness.

Query.—Not hereditary in the opinion of eminent authorities. The most that could be said with certainty is that any weakness of heart might be liable to descend to posterity; although not necessarily in the shape of any special disease.

Bookstall.—We advise you to take a dessertspoonful of Scott's Pure Cod Oil Emulsion after your meals, thrice daily. This is an excellent tonic and nutritive. Let your diet be generous; and if the above treatment does not suffice for your improvement, then try a little good claret to dinner daily for a time, as an aid to food-assimilation. Glad to advise you again, if necessary.

Dot.—Kindly note Rule 4 to Correspondents. We will send you addresses, if you send stamped addressed envelope.

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